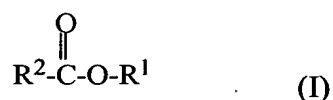
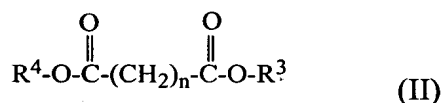


WHAT IS CLAIMED IS:

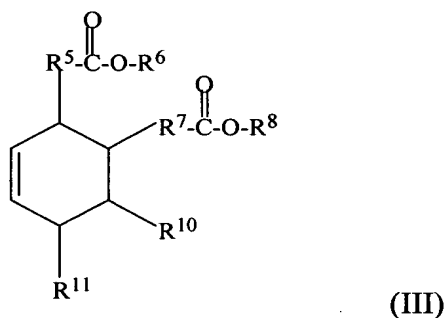
1. A sealant composition comprising a sealant; and an adhesion promoter containing (1) an adhesive resin in an amount of about 0.1% to about 15% by weight, based on the weight of the sealant in the sealant composition; and (2) an ester having
- 5 formula I, II, III, IV or a combination of any two or more of said esters in an amount of about 0.1% to about 15% by weight, based on the weight of the sealant in the sealant composition:



- wherein R^1 is a $\text{C}_3\text{-C}_{24}$ alkyl radical, straight chain or branched, saturated or
- 10 unsaturated containing 1 to 3 carbon-to-carbon double bonds; R^2 is a $\text{C}_3\text{-C}_{24}$ saturated fatty acid residue, or an unsaturated fatty acid residue having 1 to 6 carbon-to-carbon double bonds;



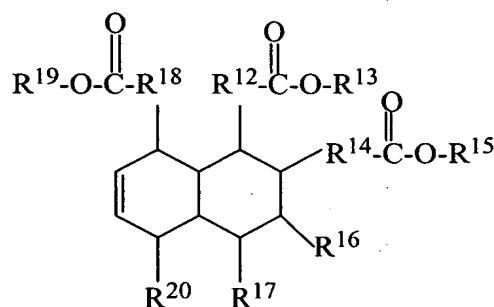
- wherein $n=3\text{-}24$, and R^3 and R^4 , same or different, are a $\text{C}_3\text{-C}_{24}$ alkyl radical, straight
- 15 chain or branched, saturated or unsaturated containing 1 to 3 carbon-to-carbon double bonds;



- wherein R^5 and R^7 , same or different, are a $\text{C}_3\text{-C}_{24}$ hydrocarbon chain, straight chain or branched, either saturated or having 1 to 6 carbon-to-carbon double bonds;

R^6 and R^8 , same or different, are C_3 - C_{24} alkyl radical, straight chain or branched, saturated or unsaturated containing 1 to 3 carbon-to-carbon double bonds; and

R^{10} and R^{11} , same or different, are a C_3 - C_{24} , saturated hydrocarbon chain, straight chain or branched; or an unsaturated C_3 - C_{24} , hydrocarbon chain, straight chain or branched, having 1 to 6, carbon-to-carbon double bonds;



(IV)

wherein R^{12} , R^{14} and R^{18} , same or different, are a C_3 - C_{24} hydrocarbon chain, straight chain or branched, either saturated or having 1 to 6 carbon-to-carbon double bonds;

10

R^{13} , R^{15} and R^{19} , same or different, are a C_3 - C_{24} alkyl, straight chain or branched, saturated or unsaturated containing 1 to 3 carbon-to-carbon double bonds; and

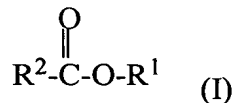
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R^{16} , R^{17} and R^{20} , same or different, are a C_3 - C_{24} saturated hydrocarbon chain, straight chain or branched; or unsaturated C_3 - C_{24} hydrocarbon chain, straight chain or branched, containing 1 to 6 carbon-to-carbon double bonds.

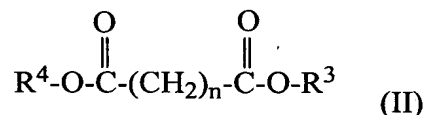
2. The sealant composition of claim 1, wherein the ester is selected from the group consisting of formula I, II, III, IV, and a combination of any two or more of said esters:

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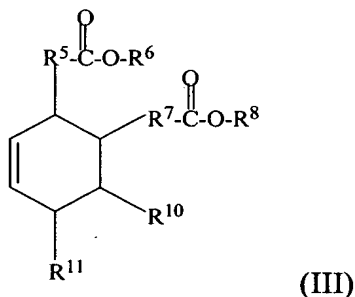
- 39 -



wherein R^1 is a $\text{C}_3\text{-C}_{18}$ alkyl radical, straight chain or branched, saturated or unsaturated containing 1 to 3 carbon-to-carbon double bonds; and R^2 is a $\text{C}_8\text{-C}_{18}$ saturated fatty acid residue, or an unsaturated fatty acid residue having 1 to 3 carbon-to-carbon double bonds;



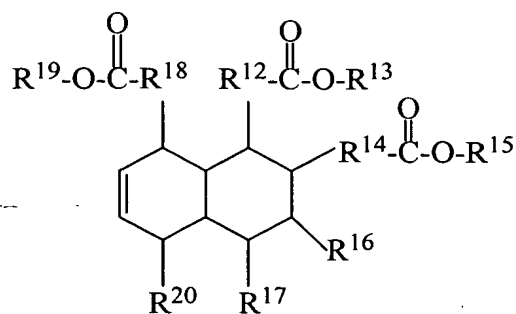
wherein $n=6-18$, and R^3 and R^4 , same or different, are a $\text{C}_3\text{-C}_{18}$ alkyl radical, straight chain or branched, saturated or unsaturated containing 1 to 3 carbon-to-carbon double bonds;



wherein R^5 and R^7 , are a $\text{C}_6\text{-C}_{24}$ hydrocarbon chain, straight chain or branched; either saturated or having 1 to 3 carbon-to-carbon double bonds;

R^6 and R^8 , same or different, are a $\text{C}_3\text{-C}_{18}$ alkyl radical, straight chain or branched, saturated or unsaturated containing 1 to 3 carbon-to-carbon double bonds; and

R^{10} and R^{11} , same or different, are a $\text{C}_3\text{-C}_{18}$, saturated hydrocarbon chain, straight chain or branched; or an unsaturated hydrocarbon chain, straight chain or branched, containing 1 to 3 carbon-to-carbon double bonds;



(IV)

wherein R^{12} , R^{14} and R^{18} , same or different, are a C_8 - C_{18} , hydrocarbon chain, straight chain or branched, either saturated or having 1 to 3 carbon-to-carbon double bonds;

- 5 R^{13} , R^{15} and R^{19} , same or different, are a C_6 - C_{18} alkyl radical, straight chain or branched, saturated or unsaturated containing 1 to 3 carbon-to-carbon double bonds; and

- 10 R^{16} , R^{17} and R^{20} , same or different, are a C_6 - C_{18} saturated hydrocarbon chain, straight chain or branched; or an unsaturated C_6 - C_{18} hydrocarbon chain, straight chain or branched, containing 1 to 3 carbon-to-carbon double bonds.

3. The sealant composition of claim 1, wherein the adhesive resin is a condensation product of a methylene acceptor and a methylene donor.

15

4. The sealant composition of claim 3, wherein the adhesive resin is selected from the group consisting of phenol-formaldehyde, melamine-formaldehyde; naphthol-formaldehyde; polyepoxide; a reaction product of triallyl cyanurate, resorcinol, and formaldehyde; a reaction product of p-chlorophenol, resorcinol, and formaldehyde; a copolymer of styrene, butadiene, and 2-vinylpyridine; and mixtures thereof.
- 20

5. The sealant composition of claim 4, wherein the phenol-formaldehyde resin is resorcinol-formaldehyde.

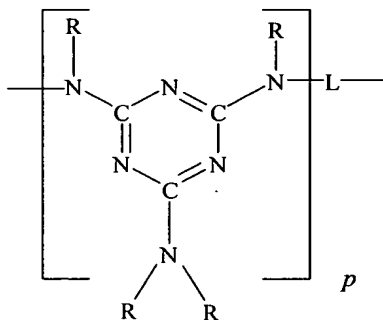
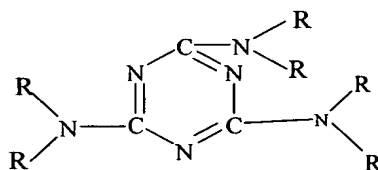
6. The sealant composition of claim 1, wherein the adhesive resin is selected from the group consisting of derivatives of melamine, acetoguanamine, benzoguanamine, cyclohexylguanamine and glycoluril monomers and oligomers of these monomers, which have been substituted on average at two or more positions on the monomer or on each unit of the oligomer with vinyl terminated radicals, the sealant composition being free of resorcinol.

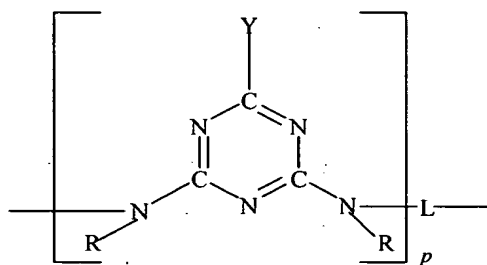
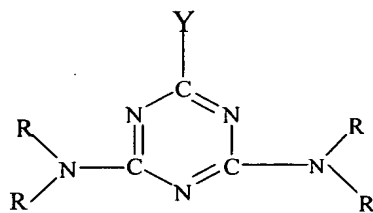
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7. The sealant composition of claim 6, wherein at least one of the adhesive resins has been further substituted on average at one or more positions with a radical which comprises carbamoylmethyl or amidomethyl.

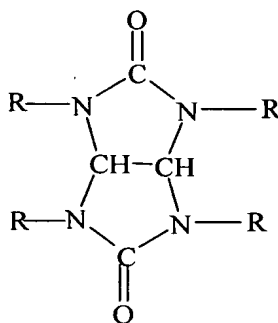
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8. The sealant composition of claim 6, wherein the adhesive resin is selected from compounds of the formula:

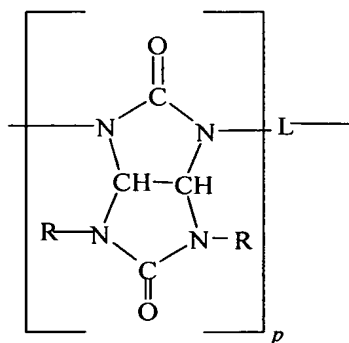




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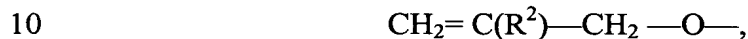
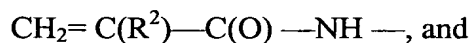
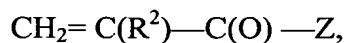
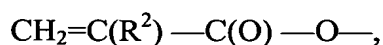
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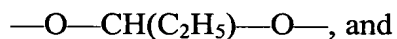
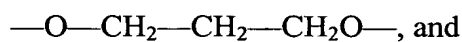
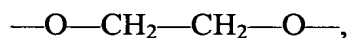
and positional isomers thereof,

wherein, in each monomer and in each polymerized unit of the oligomers, Y is selected from methyl, phenyl and cyclohexyl, and, on average, at least two R are -

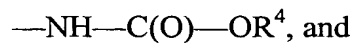
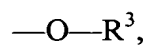
5 $\text{CH}_2\text{-R}^1$, and any remaining R are H, and at least 2 R^1 are radicals selected from



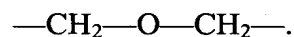
wherein R^2 is hydrogen or $\text{C}_1\text{-C}_{18}$ alkyl, and Z is a radical selected from



any remaining R^1 radicals are selected from

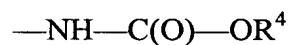


- 5 wherein R_3 is hydrogen or R_4 , and R_4 is a C_1 - C_{18} alkyl, alicyclic, hydroxyalkyl, alkoxyalkyl or aromatic radical, and in the oligomers, P is 2 to about 10, and L is methylene or the radical



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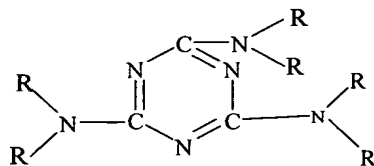
9. The sealant composition of claim 8, wherein on average at least one R^1 in each monomer or in each oligomerized unit of the adhesive resin is:



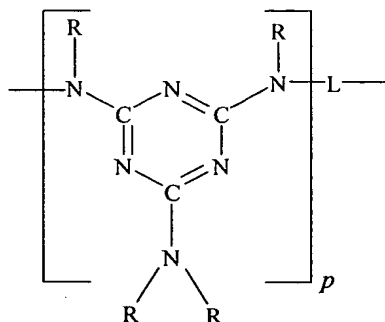
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wherein R^4 is as defined in claim 8.

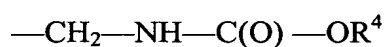
10. The sealant composition of claim 9, wherein the adhesive resin is a compound of the formula



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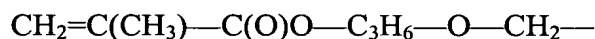


11. The sealant composition of claim 10, wherein in the adhesive resin formulas, on average at least one R radical in each monomer or in each oligomerized unit is

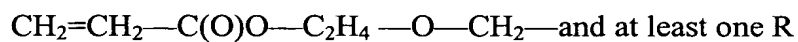


wherein R^4 is a C_1 - C_{18} alkyl, alicyclic, hydroxyalkyl, alkoxyalkyl or aromatic radical.

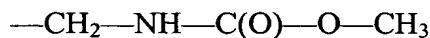
12. The sealant composition of claim 10, wherein on average at least two R radicals are selected from



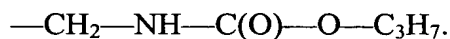
and



- radical is selected from



and



13. The sealant composition of claim 8, further comprising an additional additive selected from hydroxymethylated and alkoxymethylated (alkoxy having 1-5 carbon atoms) derivatives of melamine, acetoguanamine, benzoguanamine, cyclohexylguanamine and glycoluril and their oligomers.

5

14. The sealant composition of claim 6, wherein the adhesive resin is a derivative of melamine or an oligomer of melamine.

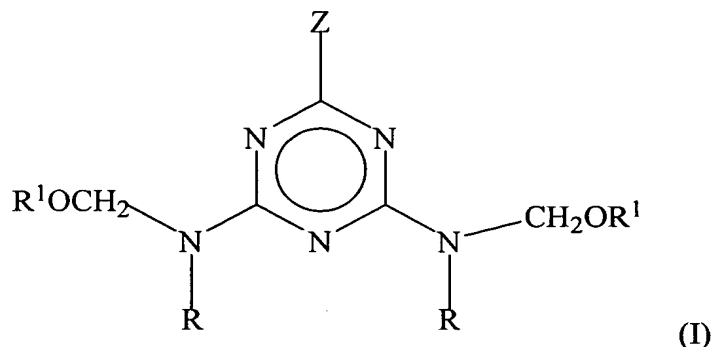
15. The sealant composition of claim 6, wherein the adhesive resin is a
10 derivative of acetoguanamine or an oligomer of acetoguanamine.

16. The sealant composition of claim 6, wherein the adhesive resin is a derivative of benzoguanamine or an oligomer of benzoguanamine.

15 17. The sealant composition of claim 6, wherein the adhesive resin is a derivative of cyclohexylguanamine or an oligomer of cyclohexylguanamine.

18. The sealant composition of claim 1, wherein the adhesive resin is a self-condensing alkylated triazine resin selected from the group consisting of (i), (ii),
20 and (iii):

(i) a self-condensing alkylated triazine resin having at least one of imino or methylol functionality and represented by formula (I)



(ii) an oligomer of (i), or

(iii) a mixture of (i) and (ii), wherein

5 Z is -N(R)(CH₂OR¹), aryl having 6 to 10 carbon atoms, alkyl having 1 to 20 carbon atoms or an acetyl group,

each R is independently hydrogen or -CH₂OR¹, and

each R¹ is independently hydrogen or an alkyl group having 1 to 12 carbon atoms,

10 provided that at least one R is hydrogen or -CH₂OH and at least one R¹ is selected from the alkyl group; and

wherein the sealant composition is substantially free of methylene acceptor coreactants.

15 19. The sealant composition of claim 18, wherein at least one R group is hydrogen.

20. The sealant composition of claim 19, wherein at least one R¹ group is a lower alkyl group having 1 to 6 carbon atoms.

21. The sealant composition of claim 20, wherein the adhesive resin is a derivative of melamine, benzoguanamine, cyclohexylguanamine, or acetoguanamine, or an oligomer thereof.

5 22. The sealant composition of claim 20, wherein Z is $-N(R)(CH_2OR^1)$.

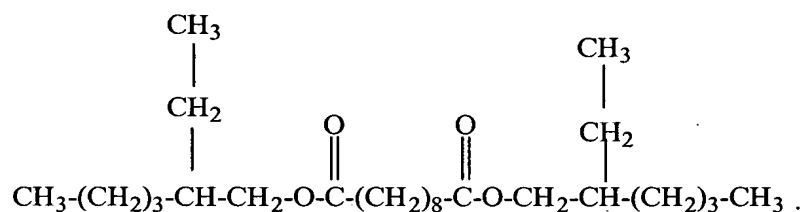
23. The sealant composition of claim 4, wherein the phenol-formaldehyde resin is resorcinol-formaldehyde; and the melamine-formaldehyde resin is N-(substituted oxymethyl) melamine-formaldehyde.

10

24. The sealant composition of claim 1, wherein the ester has the formula II and comprises a saturated diester formed by the reaction of sebacic acid and a C_3 - C_{24} alcohol, straight chain or branched, saturated or unsaturated containing 1 to 3 carbon-to-carbon double bonds.

15

25. The sealant composition of claim 24, wherein the alcohol is 2-ethylhexyl alcohol, and the ester has the following formula:



20

26. The sealant composition of claim 1, wherein the ester is an unsaturated diester formed by the reaction of a C_{36} dimer acid and a C_3 - C_{24} alcohol, straight chain

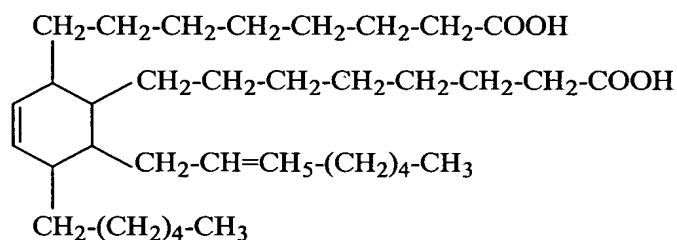
or branched, saturated or unsaturated containing 1 to 3 carbon-to-carbon double bonds.

27. The sealant composition of claim 26, wherein the alcohol is 2-ethylhexyl alcohol.

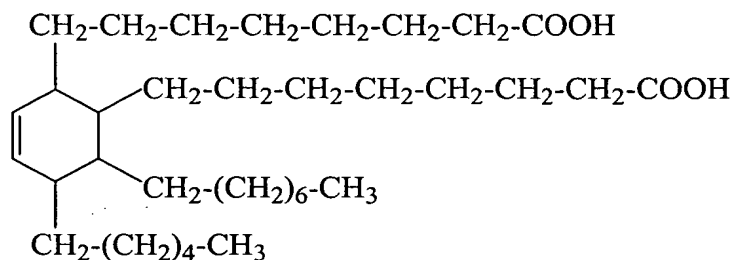
28. The sealant composition of claim 26, wherein the alcohol is tridecyl alcohol.

29. The sealant composition of claim 26, wherein the alcohol is oleyl alcohol.

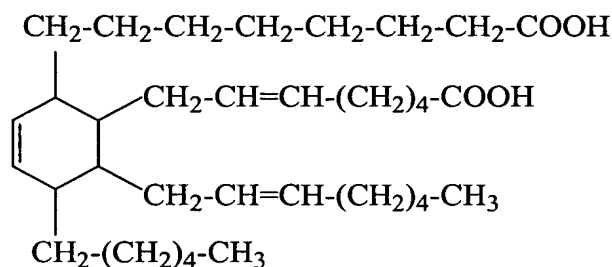
30. The sealant composition of claim 1, wherein the ester comprises the following dimer acid reacted with a C₃-C₂₄ alcohol:



31. The sealant composition of claim 1, wherein the ester comprises the following dimer acid reacted with a C₃-C₂₄ alcohol:

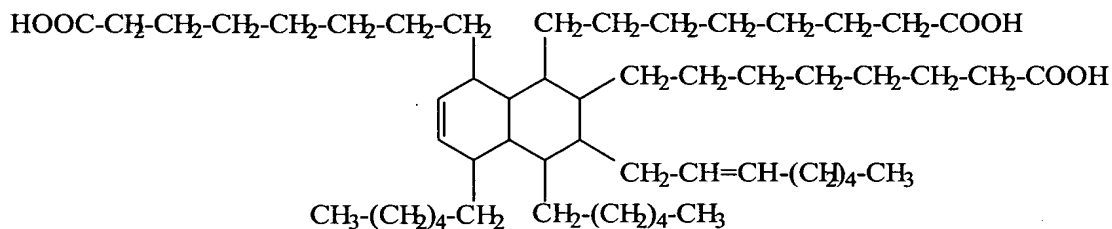


32. The sealant composition of claim 1, wherein the ester comprises the following dimer acid reacted with a C₃-C₂₄ alcohol:



5

33. The sealant composition of claim 1, wherein the ester is the reaction product of a C₃-C₂₄ alcohol with a tricarboxylic acid having the following formula:



10

34. The sealant composition of claim 1, wherein the ester is a combination of compounds of formula I, II, III, and IV.

35. The sealant composition of claim 34, wherein the ester is a reaction product of a C₃-C₂₄ alcohol straight chain or branched, saturated or unsaturated having 1 to 3 carbon-to-carbon double bonds, with a dimer acid having CAS #61788-89-4.

5

36. The sealant composition of claim 35, wherein the alcohol is 2-ethylhexyl alcohol.

10

37. The sealant composition of claim 35, wherein the alcohol is a tridecyl alcohol.

38. The sealant composition of claim 35, wherein the alcohol is an oleyl alcohol.

15

39. The sealant composition of claim 1, wherein the ester is a combination of compounds having formula II, III, and IV.

40. The sealant composition of claim 1, wherein the ester has formula III.

20

41. The sealant composition of claim 1, wherein the ester has formula IV.

42. The sealant composition of claim 1, wherein the adhesion promoter is a liquid selected from the group consisting of a solvent solution and a water-based emulsion.

25

43. The sealant composition of claim 42, wherein the adhesion promoter is a solvent solution comprising 2-ethylhexyl alcohol.

44. The sealant composition of claim 1, wherein the adhesion promoter is
5 mixed with a solid, inert carrier.

45. The sealant composition of claim 44, wherein the solid, inert carrier is calcium silicate.

10 46. The sealant composition of claim 1, further comprising a reactive diluent in an amount of about 0.5% to about 50% by weight, based on the total weight of the adhesion promoter.

15 47. The sealant composition of claim 46, wherein the reactive diluent is a monomer selected from the group consisting of (1) a glycidyl ether; (2) a diglycidyl ether; (3) an aliphatic, straight chain epoxide; (4) an epoxidized vegetable oil; (5) a cycloaliphatic epoxy; (6) a glycidyl ester; (7) a diglycidyl ester; and any combination thereof.

20 48. The sealant composition of claim 1, wherein the sealant comprises a polymer having a molecular weight between about 5000 grams/mol and about 100,000 grams/mol, and a curing agent for the polymer.

25 49. The sealant composition of claim 48, wherein the sealant is selected from the group consisting of synthetic polymers and natural polymers.

50. The sealant composition of claim 49, wherein the polymer is a synthetic sealant polymer selected from the group consisting of silicones, butyl rubbers, acrylics, urethanes, and modified urethanes.

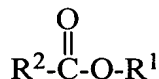
5 51. The sealant composition of claim 1, wherein the R^2 , R^5 , R^7 , R^{12} , R^{14} are fatty acid residues derived from animal or vegetable fatty acids.

52. The sealant composition of claim 51, wherein the fatty acids are selected from the group consisting of butter; lard; tallow; grease; herring; menhaden;
10 pilchard; sardine; babassu; castor; coconut; corn; cottonseed; jojoba; linseed; oiticia; olive; palm; palm kernel; peanut; rapeseed; safflower; soya; sunflower; tall; tung; and mixtures thereof.

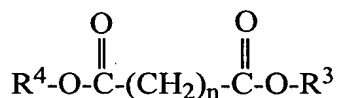
53. The sealant composition of claim 52, wherein the fatty acid residues
15 are selected from the group consisting of hexanoic; octanoic; decanoic; dodecanoic; 9-dodecenoic; tetradecanoic; 9-tetradecenoic; hexadecanoic; 9-hexadecenoic; octadecanoic; 9-octadecenoic; 9-octadecenoic, 12-hydroxy; 9, 12-octadecadienoic; 9, 12, 15-octadecatrienoic; 9, 11, 13-octadecatrienoic; 9, 11, 13-octadecatrienoic, 4-oxo; octadecatetrenoic; eicosanoic; 11-eicosenoic; eicosadienoic; eicosatrienoic;
20 5, 8, 11, 14-eicosatetraenoic; eicosapentaenoic; docosanoic; 13-docosenoic; docosatetraenoic; 4, 8, 12, 15, 19-docosapentaenoic; docosahexaenoic; tetracosenoic; and 4, 8, 12, 15, 18, 21-tetracosahexaenoic.

54. A method of increasing the adhesion of a sealant composition to a
25 ceramic, glass, metal, polymeric, cementitious, or asphaltic substrate, said sealant composition comprising a sealant and an adhesive resin, the method comprising adding to said sealant composition, in an amount of about 0.1% to 15% by weight,

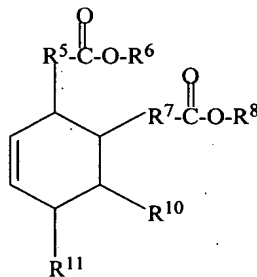
based on the weight of the sealant in the sealant composition, an ester having formula I, II, III, IV, or mixtures thereof:



- wherein R¹ is a C₃-C₂₄ alkyl radical, straight chain or branched, saturated or
 5 unsaturated containing 1 to 3 carbon-to-carbon double bonds; R² is a C₃-C₂₄ saturated fatty acid residue, or an unsaturated fatty acid residue having 1 to 6 carbon-to-carbon double bonds;



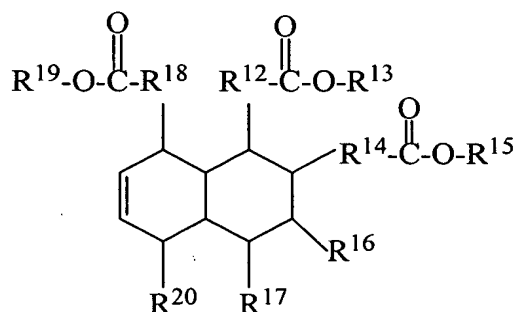
- wherein n=3-24 and R³ and R⁴, same or different, are a C₃-C₂₄ alkyl radical,
 10 straight chain or branched;



- wherein R⁵ and R⁷, same or different, are a C₃-C₂₄ hydro carbon chain, straight chain or branched, either saturated or having 1 to 6 carbon-to-carbon double bonds;

- 15 R⁶ and R⁸, same or different, are a C₃-C₂₄ alkyl radical, straight chain or branched;
 and

R^{10} and R^{11} , same or different, are a C_3 - C_{24} , saturated hydrocarbon chain, straight chain or branched; or an unsaturated C_3 - C_{24} , hydrocarbon chain, straight chain or branched, having 1 to 6 carbon-to-carbon double bonds;



- 5 wherein R^{12} , R^{14} and R^{18} , same or different, are a C_3 - C_{24} hydrocarbon chain, straight chain or branched, either saturated or having 1 to 6 carbon-to-carbon double bonds;

R^{13} , R^{15} and R^{19} , same or different, are C_3 - C_{24} alkyl radical, straight chain or branched, saturated or unsaturated containing 1 to 3 carbon-to-carbon double bonds;

10 and

R^{16} , R^{17} and R^{20} , same or different, are C_3 - C_{24} saturated hydrocarbon chain, straight chain or branched; or unsaturated C_3 - C_{24} hydrocarbon chain, straight chain or branched, containing 1 to 6 carbon-to-carbon double bonds.

15

55. The method of claim 54, wherein the substrate is a ceramic substrate.

56. The method of claim 54, wherein the substrate is a glass substrate.

20 57. The method of claim 54, wherein the substrate is a metal flat stock material.

58. The method of claim 54, wherein the substrate is a polymeric substrate.

59. The method of claim 54, wherein the substrate is a cementitious
5 substrate.

60. The method of claim 59, wherein the substrate is a concrete substrate.

61. The method of claim 54, wherein the substrate is an asphaltic substrate.
10

62. The method of claim 54, wherein the adding comprises adding a liquid
comprising the adhesive resin and the ester having Formula I, II, III, IV, or mixtures
thereof, and the liquid is selected from the group consisting of a solvent solution and a
water-based emulsion.

63. The method of claim 62, wherein the liquid is a solvent solution
15 comprising 2-ethylhexyl alcohol.

64. The method of claim 62, wherein the liquid is a solvent solution further
20 comprising a reactive diluent in an amount of about 0.5% to about 50% by weight,
based on the total weight of the adhesive resin and the ester having Formula I, II, III,
IV, or mixtures thereof.

65. The method of claim 64, wherein the reactive diluent is a monomer
25 selected from the group consisting of (1) a glycidyl ether; (2) a diglycidyl ether; (3) an

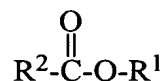
aliphatic, straight chain epoxide; (4) an epoxidized vegetable oil; (5) a cycloaliphatic epoxy; (6) a glycidyl ester; (7) a diglycidyl ester; and any combination thereof.

66. The method of claim 54, wherein the adding comprises adding a mixture of the adhesive resin and the ester having Formula I, II, III, IV, or mixtures thereof, and a solid, inert carrier.

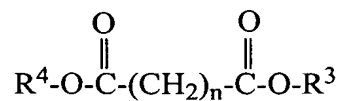
67. The method of claim 66, further comprising heating the mixture to a temperature between about 50°C and about 200°C before adding the mixture.

68. The method of claim 54, wherein the adding comprises coating the substrate with a solution comprising the ester having Formula I, II, III, IV, or mixtures thereof.

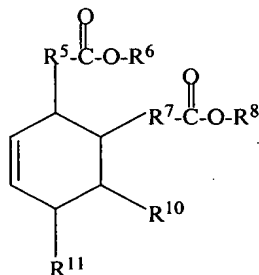
69. A method of adhering a sealant composition to a ceramic, glass, metal, polymeric, cementitious, or asphaltic substrate, said sealant composition comprising a sealant and an ester having formula I, II, III, IV, or mixtures thereof, the method comprising coating the substrate with a liquid containing an adhesive resin to form a coated substrate; and applying the sealant composition to the coated substrate:



wherein R¹ is a C₃-C₂₄ alkyl radical, straight chain or branched, saturated or unsaturated containing 1 to 3 carbon-to-carbon double bonds; R² is a C₃-C₂₄ saturated fatty acid residue, or an unsaturated fatty acid residue having 1 to 6 carbon-to-carbon double bonds;



wherein $n=3-24$ and R^3 and R^4 , same or different, are a $\text{C}_3\text{-C}_{24}$ alkyl radical, straight chain or branched;



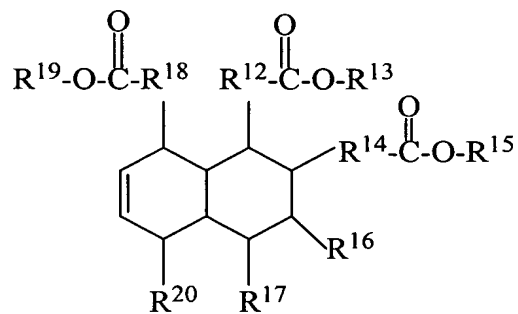
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wherein R^5 and R^7 , same or different, are a $\text{C}_3\text{-C}_{24}$ hydro carbon chain, straight chain or branched, either saturated or having 1 to 6 carbon-to-carbon double bonds;

R^6 and R^8 , same or different, are a $\text{C}_3\text{-C}_{24}$ alkyl radical, straight chain or branched;

10 and

R^{10} and R^{11} , same or different, are a $\text{C}_3\text{-C}_{24}$, saturated hydrocarbon chain, straight chain or branched; or an unsaturated $\text{C}_3\text{-C}_{24}$, hydrocarbon chain, straight chain or branched, having 1 to 6 carbon-to-carbon double bonds;



15

wherein R^{12} , R^{14} and R^{18} , same or different, are a C_3 - C_{24} hydrocarbon chain, straight chain or branched, either saturated or having 1 to 6 carbon-to-carbon double bonds;

R^{13} , R^{15} and R^{19} , same or different, are C_3 - C_{24} alkyl radical, straight chain or
5 branched, saturated or unsaturated containing 1 to 3 carbon-to-carbon double bonds;
and

R^{16} , R^{17} and R^{20} , same or different, are C_3 - C_{24} saturated hydrocarbon chain, straight
chain or branched; or unsaturated C_3 - C_{24} hydrocarbon chain, straight chain or
10 branched, containing 1 to 6 carbon-to-carbon double bonds.

70. The method of claim 69, wherein the substrate is a ceramic substrate.

71. The method of claim 69, wherein the substrate is a glass substrate.

15

72. The method of claim 69, wherein the substrate is a metal flat stock
material.

73. The method of claim 69, wherein the substrate is a polymeric substrate.

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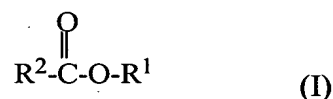
74. The method of claim 69, wherein the substrate is a cementitious
substrate.

75. The method of claim 74, wherein the substrate is a concrete substrate.

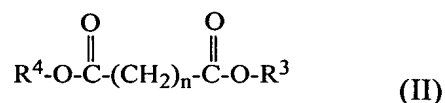
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76. The method of claim 69, wherein the substrate is an asphaltic substrate.

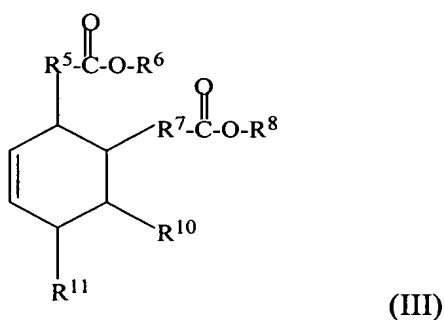
77. A sealant composition comprising a sealant; and an ester having formula I, II, III, IV or a combination of any two or more of said esters in an amount of about 0.1% to about 15% by weight, based on the weight of the sealant in the sealant composition:



wherein R^1 is a $\text{C}_3\text{-C}_{24}$ alkyl radical, straight chain or branched, saturated or unsaturated containing 1 to 3 carbon-to-carbon double bonds; R^2 is a $\text{C}_3\text{-C}_{24}$ saturated fatty acid residue, or an unsaturated fatty acid residue having 1 to 6 carbon-to-carbon double bonds;



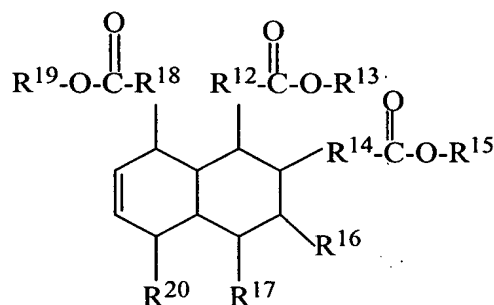
wherein $n=3\text{-}24$, and R^3 and R^4 , same or different, are a $\text{C}_3\text{-C}_{24}$ alkyl radical, straight chain or branched, saturated or unsaturated containing 1 to 3 carbon-to-carbon double bonds;



wherein R^5 and R^7 , same or different, are a $\text{C}_3\text{-C}_{24}$ hydrocarbon chain, straight chain or branched, either saturated or having 1 to 6 carbon-to-carbon double bonds;

R^6 and R^8 , same or different, are C_3 - C_{24} alkyl radical, straight chain or branched, saturated or unsaturated containing 1 to 3 carbon-to-carbon double bonds; and

R^{10} and R^{11} , same or different, are a C_3 - C_{24} , saturated hydrocarbon chain, straight chain or branched; or an unsaturated C_3 - C_{24} , hydrocarbon chain, straight chain or branched, having 1 to 6, carbon-to-carbon double bonds;



(IV)

wherein R^{12} , R^{14} and R^{18} , same or different, are a C_3 - C_{24} hydrocarbon chain, straight chain or branched, either saturated or having 1 to 6 carbon-to-carbon double bonds;

R^{13} , R^{15} and R^{19} , same or different, are a C_3 - C_{24} alkyl, straight chain or branched, saturated or unsaturated containing 1 to 3 carbon-to-carbon double bonds; and

R^{16} , R^{17} and R^{20} , same or different, are a C_3 - C_{24} saturated hydrocarbon chain, straight chain or branched; or unsaturated C_3 - C_{24} hydrocarbon chain, straight chain or branched, containing 1 to 6 carbon-to-carbon double bonds.

78. The sealant composition of claim 77, further comprising an adhesive resin.

79. The sealant composition of claim 78, wherein the adhesive resin is a condensation product of a methylene acceptor and a methylene donor.

80. The sealant composition of claim 79, wherein the adhesive resin is selected from the group consisting of phenol-formaldehyde, melamine-formaldehyde; naphthol-formaldehyde; polyepoxide; a reaction product of triallyl cyanurate, resorcinol, and formaldehyde; a reaction product of p-chlorophenol, resorcinol, and formaldehyde; a copolymer of styrene, butadiene, and 2-vinylpyridine; and mixtures thereof.

81. The sealant composition of claim 77, wherein the ester is a combination of compounds of formula I, II, III, and IV.

82. The sealant composition of claim 81, wherein the ester is a reaction product of a C₃-C₂₄ alcohol straight chain or branched, saturated or unsaturated having 1 to 3 carbon-to-carbon double bonds, with a dimer acid having CAS #61788-89-4.

83. The sealant composition of claim 82, wherein the alcohol is 2-ethylhexyl alcohol.

84. The sealant composition of claim 82, wherein the alcohol is a tridecyl alcohol.

85. The sealant composition of claim 82, wherein the alcohol is an oleyl alcohol.

86. The sealant composition of claim 77, wherein the ester is a combination of compounds having formula II, III, and IV.

87. The sealant composition of claim 77, wherein the ester has formula III.

5

88. The sealant composition of claim 77, wherein the ester has formula IV.